

METHODS OF PROVIDING DIRECT TECHNICAL SUPPORT OVER NETWORKS

Related Applications

The present application is a CIP of US Patent Application No. 10/462,455, and US Patent
5 Application 10/462,417, both which were filed on June 16, 2003, which are continuations of U.S.
Patent Application No. 10/327,152, filed Dec. 21, 2002, and US Patent Application No.
10/327,812, filed on Dec. 21, 2002 respectively, titled respectively METHODS FOR
PROVIDING INFORMATION AND PROVIDING STUDENT EXPERIENCE IN
PROVIDING INFORMATION and METHODS FOR PROVIDING INFORMATION OVER
10 NETWORKS RESPONSIVE TO DIGITAL DEVICE USER REQUESTS which claim priority
to U.S. Provisional Patent Application Serial No. 60/342,626, filed Dec. 21, 2001, titled
METHODS FOR PROVIDING INFORMATION AND FOR PROVIDING EXPERIENCE IN
PROVIDING INFORMATION, both herein incorporated by reference in their entireties.

Fields of the Invention

15 The present invention is related generally to computer based support systems. More
specifically, the present invention is related to methods for receiving requests for information,
help, or training, over the computer network and automatically and intelligently routing the
requests to selected, screened, qualified human assistants. The invention includes executable
computer programs and kits for providing live, direct, human to human technical support through
20 live audio and audio-visual link to human helpers which can include computer screen and
application sharing.

Background of the Invention

The relatively recent rise of internet-based transactions has provided a multitude of new
opportunities for selling products and services and obtaining information. In particular, many
25 goods and services can now be purchased directly by consumers over the internet and can also be
purchased through a business-to-business transaction. This internet-based commerce or e-
commerce provides increased efficiencies and often eliminates possibly costly intermediaries.
The elimination of these intermediaries is not without cost. The intermediary organizations and
salesmen and saleswomen frequently provided a useful function. These organizations and
30 people frequently provided badly needed handholding and specialized product and service
expertise, that was often provided at no extra charge to purchasers of the products or services.

With the advent of direct purchasing via the internet, this formerly freely provided level of expertise has often been lost. The amount of expertise available on the internet is often hard to find, outdated, of questionable accuracy, and often has no financial driving force to cause its provision, accuracy, and currency to be maintained. This can cause a large number of poorly made purchasing decisions which can result in either waste through unused purchases by consumers, or by product returns from consumers to sellers of products or services that were either poorly purchased in the first place, or under utilized or misutilized in the second place. Much of this poor purchasing and/or poor usage of correctly purchased products could have been avoided had pertinent product or service directed advice been made available, as it often had been before through the intermediary organizations or people.

What would be desirable are technological-based solutions to reintroduce a person-to-person based level of interaction to provide information or assistance to the purchasers of products or services, even when purchased online, over a computer network, for example, over the Internet. Technological solutions providing product or service directed information provided by a person having specialized knowledge regarding that product or service, directed in a person-to-person manner, would be advantageous. A technological solution to providing face-to-face advice to the purchasers of a product after the purchase of a product would be most beneficial, and could regain and even surpass the previous level of person-to-person advice provided by the former in-person contact provided before the advent of electronic-based business.

Productivity in commercial and personal life can be increased through use of information and technology. Much of the economic growth of the 1990s has been attributed to increased productivity which has been increasing year after year. Much of this productivity has been made possible by the increased use of information, the so-called "information economy." Information and technology have thus acted as multipliers in increasing the effective utilization rates of human and other capital, increasing the return on investment.

While the increased use of digital devices and information technology has increased the return on investment of capital generally, a significant majority percentage of features of digital devices and digital technologies still remain unused or incompletely used. It is well known that many people are unable to program their video cassette recorders (VCRs). It is also true that most consumers of digital technologies do not utilize a significant percentage of the features of the digital technologies they already own or use, or which their employers or organization

already own or use. This lack of utilization of capital could be improved by providing timely, user and context-specific training, help, or information to the person having the underutilized digital technologies. While this underutilization of capital applies to digital technologies, it also applies to capital expenditures generally, and more generally to sub-optimally utilizing human capital.

Users of computers and other digital technologies can increase their productivity and increase the return on their investments in digital technologies by receiving timely, context-specific and immediately applied training. Unfortunately, the timing, location, level, and granularity of the training is normally mismatched to the user's needs. It is axiomatic that people often learn best when solving a problem at hand or answering a question they have immediate need to answer. Digital device training may be provided six months prior to the need for the training, and long forgotten, or six months after the immediate need has gone away, and not adopted or internalized. The immediate need may require a specific answer to a specific question within a specific context often defined by highly interdependent business processes and integrated technologies. Such needs are not properly accommodated or addressed using traditional training tools. When a course is provided, the location may be off-site, or at least away from the user's desk, which generates further inefficiencies in the form of expensive opportunity costs as they are both physically and mentally removed from their job. Current training is typically carried out in groups, making the group members subject to peer pressure, which can squelch questions and reduce effectiveness.

In any case, it is unlikely that existing training solutions are provided in short, 5-20 minute increments spread sporadically about a work week, as are the needs for that training. Moreover, the principles of adult learning clearly prove learning is maximized in short, highly context-specific sessions which are immediately applied on demand within the learner's work.

Due to the current mismatch between traditional training tools, learners' needs and the principles of adult education, consumers of digital technologies often flounder, fail to locate, set-up, or to use a significant majority of the features of digital technologies, resulting in being significantly less than optimally productive. This leads to a poor return on investments in digital technologies and human capital. Moreover, consumers of digital technologies also tend to ask fellow employees for help, which by interrupting them, lowers their productivity, and can result in multiple digital device users floundering and attempting to find answers.

Organizations sometimes employ help desks, often internal help desks. These help desks are staffed with a limited number of helpers, having a limited number of subject matters they have mastered. The helpers are often rated and reviewed according to the number of calls they dispose of per time period. Today's help desk business model is often based entirely on reducing call lengths, which is entirely contrary to best training practices. Today's help desk services default to solving users' problems (giving users a fish) rather than teaching them how to solve problems independently (teaching users how to fish). As a consequence, today's help desk services virtually guarantee users will call back often in search of the same answer. Although such recurring revenue is good for help desk firms, and disposing of calls quickly makes the firms look good due to the metric being measured, it results in higher help desk costs, higher levels of user frustration and lower levels of user productivity. Users dislike being given solutions they don't understand, remember, or they cannot apply immediately. In short, the users do not learn. Traditional call centers tend to experience relatively high staff turnover as their mandate to reduce call lengths can result in an unpleasant working atmosphere. In particular, helpers that provide low quality help to users but do so rapidly may look good in a metric measuring the number of calls disposed of. Conversely, a helper providing higher quality, but possibly more lengthy, training-type assistance to users may look bad according to the traditional metric used. This may lead to either poor performance reviews and/or burnout as otherwise high quality individuals are forced to give low quality answers to meet the desired management metric. Although this approach may be the correct one where providing technical support is concerned, it is most definitely not correct where learning and education are concerned.

Students in educational institutions often master a wide variety of subject matters. There is often an "application gap" between the subject matter mastered and the ability to apply that subject matter in the commercial world or any context outside of the educational institution. In one example, students may learn how to use a digital device database package, but may only use it for student-created projects or teacher-created projects, both of which may lack real world applications. One of the best ways to learn is to teach. In a typical educational institution, however, students are rarely provided with professional, real-world opportunities to teach. Students also lack any external, professional drivers forcing them to focus on the areas of commercial application of the products they are studying.

As a more general problem, many students do not have experience in practicing communications or customer presentation skills and normal business protocols and interpersonal relationship management skills. Few students graduate with any experience in setting meetings, preparing agendas, chairing meetings, and drafting meeting minutes or real life sales and marketing skills. There are countless, basic yet important, examples of this application gap between school and the work force. This lack of “real world” context put students at a distinct disadvantage during job interviews, after starting jobs, in dealing with clients and co-workers in a business setting. Moreover, students’ lack of “real world” context also requires employers to spend more capital resources in training students in subject matters our secondary and post-secondary educational institutions largely fail to provide today. Examples of business skills include, but are not limited to, presentation skills, needs assessment, managing expectations, initiating, maintaining, shepparding and concluding helpful discussions with clients who may be distraught, angry, and/or confused.

In another problem area, clients may come from a totally dissimilar socioeconomic background than the students. For example, it may be difficult for a bright, technically oriented person to initially relate to and converse with a senior executive who does not know what a cursor is. The only thing that is preventing the student from helping the executive is a little training in business practices and perspectives. Often, technical people are very comfortable talking to each other, but not with ordinary consumers who tend to be seriously lacking in technical know-how. Students benefit in many ways by obtaining commercial experience and interfacing with clients, while still under supervision within the educational institution.

Educational institutions and governments often face significant problems and costs in successfully transitioning students from school into the workforce. In many cases, public educational institutions are unaware of or fail to provide students with the exact skills required or desired by local employers. Other times, the students supplied by educational institutions have sufficient technical training, but have not learned how to apply their skills in a professional setting or in the context of those problems encountered by employers. The governmental and/or educational institutions in fact often lack sufficient monies to purchase digital device systems and networks sufficiently modern to mirror the types of equipment to be found by their students after they leave the educational institution and enter an outside organization.

What would be desirable are methods for providing commercially relevant skills and work experiences to students in the area of providing information and/or assistance to consumers of digital technologies, and assisting those students in transitioning from school to work, all independently of government funded unemployment programs or public education funded school curricula. What would also be desirable is a method for providing near instantaneous, appropriate length one-on-one tutoring and help to consumers of digital technologies in need of support. What would be advantageous are methods that provide modern equipment and commercially relevant training to educational institutions.

Summary of the Invention

The present invention provides a technical solution for enabling direct, person to person assistance over a communications network. The methods provide product and system support tools enabling, for example, a purchaser of a product or service to execute a computer program on a computer to establish an intelligently routed request for assistance to a human having knowledge in the area of the particular product or service. In one method, a human user couples a computer readable media associated with a product to a computer. A computer program on the computer readable media checks for, and if need be, installs needed software. The program can then establish a connection over a network such as the Internet directly to the help assistance organization appropriate for the particular product or service. The computer readable media can include an indication of the particular product or service and/or the assumed preferred language of the purchaser of the product or service. The assistance request can be routed to a human assistant, who may be seated at a computer device. In a preferred method, the human assistant greets the request for assistance and the human user with a live, personal, updated video link carrying the assistant's voice and a video signal carrying the assistant's image to the computer of the help requestor. The assistant may obtain preliminary information from the human user, and begin rapidly to provide assistance in a "face to face" virtual environment. Where the product involved is a computer related product, the human assistant may optionally view the same computer display as the human user and even manipulate the display to illustrate the performance of a particular software product.

The present invention also provides methods for continually updating a human user profile or record to allow the human assistant to better serve the human user and to better serve the seller, reseller, or manufacturer of the product or service by increasing customer satisfaction.

This can also result in fewer returns of merchandise by the human user to the seller as the human user is given assistance in use of the product or service.

Over time, through use of the evolving, customer profile or record, more information can be gathered about the human user in order to better serve the human user in the future. The

5 human assistant can use the virtual face to face environment to both cross-sell the human user products or services which may be of interest, or even up-sell the human user goods or services which may be related to the original goods or services sold to the human user.

The present invention can thus increase customer satisfaction, increase “stickiness” of the customer to the product seller or manufacturer through both the increased satisfaction and the
10 potential for face to face cross selling and up-selling. The invention also can provide consulting cash flow to the seller, manufacturer, and/or the assistance provider. The present invention also increases efficiency through increased use of purchased products, fewer returns of purchased products, more efficient routing to the best suited person to help the human user, and a virtual, face to face replacement for the often lost intermediary or sales person, that may no longer be
15 present due to Internet based or e-commerce based transactions by the human user.

The human assistant can be located at an assistance providing organization, or be associated with the assistance providing organization yet be geographically distant. The present invention can also provide for employment opportunities by human assistants in remote locations, for example, rural areas and spouses located at military bases.

20 The present invention also includes a kit including a product and a computer-readable media having at least one computer program thereon. The computer program can be executed on the computer to establish a connection over a computer network to a human information provider, where the program established is an audio link having the voice of the human information provider. The audio link can include the human information provider’s voice being
25 provided through the computer. The kit may also include the computer program establishing a video link, in which the human information provider’s picture if provided through a computer display over the computer network to the computer. In some kits, the computer program establishes the connection to a network address on the computer network for a human information provider having specialized knowledge regarding the product. The computer-
30 readable media may include information about the product, for example, a product manual for the product. Some kits also include a microphone adapted to be coupled to the computer, and/or

an earphone adapted to be coupled to the computer. Some kits include a headset microphone or a combination microphone- earphone, adapted to be coupled to the computer. The human information provider may be associated with an information providing organization, in which case the computer program can include a network or Internet address for the information

5 providing organization. The Internet address may be a URL.

In another embodiment of the invention, a kit is provided including a product and a computer-readable media including a computer network address for a human information provider, wherein establishing a connection over the computer network using the network address establishes at least an audio link having the voice of the human information provider.

10 The audio link also includes the human information provider's voice being provided through the computer. In some embodiments, the computer includes a video display and the kit further includes a picture of the human information provider's face being provided through the computer display. In some kits, the human information provider's picture is repeatedly updated, and may be periodically repeatedly updated. In some kits, the computer program establishes the

15 connection to the network address for the human information provider, wherein the human information provider preferably has specialized knowledge regarding the product. The computer-readable media in the kit may also include information about the product, for example, a product manual on the computer-readable media. Some kits include a microphone adapted to be coupled to the computer, and earphones to be coupled to the computer, and/or a combination

20 earphone-microphone adapted to be coupled to the computer. In some kits, the reachable human information provider is associated with an information providing organization, in which case the computer program may include a network or Internet address for the information providing organization, which may be a URL.

The present invention can also provide a method for a human user to obtain information

25 about a product from a user computer coupleable over a computer network to an information provider organization computer having a selected human information provider, who is using the information provider computer. This method can include establishing a network connection between the user computer and the information provider computer over the computer network. The method can include sending a computer used identifier, preferably a unique computer user

30 identifier, from the user computer to be received by the information provider computer over the network connection. The received computer user identifier can be matched to a record

containing information about the computer user. A direct network connection may be established to the selected human information provider from among several human information providers as a function of the information contained in the record. The record can be displayed to the human information provider on a display coupled to the information provider computer.

- 5 In some methods, the record information includes the preferred language of the user, a product previously inquired about by the user, a product knowledge level previously attained by the user, or a product knowledge area previously inquired about by the user, either individually or in any combination of these items.

10 The method can further include receiving voice information requests from the human user, by the human information provider, regarding a product or service, over the network connection. Some methods also include the human information provider entering new data into the record based on the human user voice requests. In some methods, the unique identifier is a cookie or registry entry stored on the user computer. In other methods, the unique identifier is generated by the user computer upon a first execution of a program on the user computer. In
15 some methods, the unique identifier is retrieved at least in part from an identifier stored in hardware on the user computer, for example, an Ethernet address in a communications component. In still other methods, the unique identifier is created as a function of a combination of hardware and/or and software components stored on the user computer.

In another embodiment, the invention provides a method for obtaining information about
20 a product, the method including coupling a computer-readable media to a user computer, wherein the computer-readable media includes product information and an executable computer program. The method can further include causing the executable computer program executed in the user computer to send a connection request to an information provider organization that is capable of providing live human provided information about the product. A network address can
25 be received for an information provider computer associated with the information provider organization. A connection can be established between the user computer and the information providing computer based on the received network address and a unique user identifier sent over the network from the user computer to the information provider computer. In some such methods, the unique user identifier is unique to the user computer, while in other methods, the
30 unique identifier is specific to a human user using the user computer. In some methods, the unique identifier is generated by the information providing computer and is stored in the user

computer, while in other methods, the unique identifier is created by the program as a function of reading hardware or software components of the user computer. In other methods, the method also includes sending an indication of the product or product type over the network to the information providing computer. Some methods can include sending an indication of the product or product type over the network to the information providing computer.

Methods can also include receiving a live video display of a human information provider associated with the information providing organization. Methods can also include receiving an audio stream of a human information provider's voice associated with the information providing organization. In some methods, the information providing organization is controlled by the organization providing the product, for example, a department of, a business unit of, or a subsidiary corporation of the organization making and/or selling the product. In some situations, the information providing organization and the organization making, selling or distributing the product are totally distinct but may have a contractual agreement with each other.

In still another method, for supporting a product, the method includes selling a supported product kit including a product and a computer-readable media having executable program thereon. A program can have instructions for executing a method for establishing a connection over a computer network to a human information provider. In an alternate embodiment, the supported product kit includes a network address, for example, an Internet address, of a human information provider or a human information provider organization. In such methods, the required programs for establishing the connection to the human information provider may either be assumed to reside on the computer of the human computer user and/or be downloaded over a network connection if not present or if not being a sufficiently recent release level. In either of these methods, the method that can further include accepting a request for information over the computer network originating from the computer program sold with the product in the supported product kit and accepting a unique identifier from the computer network originating from the computer program sold with the product (or downloaded to the computer using the computer network address) included in the product support kit.

In some methods, the unique identifier is as previously described. In other embodiments, the unique identifier can be the serial number of the product or the model number of the product sold in the kit. The method can further include creating a record or profile associated with the unique identifier for storing user information associated with that unique identifier. Voice

carrying audio signals can be sent from the human information provider associated with the information provider organization to the user computer. Voice request can be received from a human user regarding the product. User information can be stored in the record as a function of the received user voice requests.

- 5 Some methods further include receiving voice information from the human user about the human user and storing user information in the record as a function of the voice information received about the human user. Some methods also include sending voice audio carrying signals from the human information provider associated with the information providing organization to the user computer based in part on information that was stored in the record from a past session.
- 10 Some methods also include routing the human user to the human information provider associated with the information providing organization based at least in part on information that was stored in the record from a past session. The information stored in the record can be selected from a group consisting of user age, user gender, user residence location, user language, user expertise level with the product, user intended use for the product, the product, indicated possible future
- 15 products to be purchased, and other products already purchased by the human user.

- The present invention provides a method for interacting with customers and consumers using a single point of contact with customers to automatically and manually develop and evolve comprehensive customer profiles which are automatically cross referenced against human assistant productivity consultant profiles so that incoming customer calls are intelligently
- 20 matched to an appropriately skilled and available productivity consultant. This can result in instantaneous, live, interactive customer connection to the best possible subject matter expert who, knowing the customer's history, profile, needs, concerns, systems, set up, and other factors, delivers outstanding guidance, support, and query resolution. This can include live one or two way video, telephony, screen and/or application sharing, chat and/or e-mail support. The service
- 25 can support virtually any product or service (and their respective interoperability) including, but not limited to, software, hardware, devices, phones, PDAs, personal computers, in-vehicle systems (trains, planes, automobiles) delivered through any IP-based system and/or channel (e.g., cable, ISDN, satellite, radio, or other such channels).

- The present invention provides productivity-enhancing methods that can apply equally to
- 30 customers and consumers as they do to staff members. They also apply to both internal and external consumers and customers.

The information-providing or assistance services can be bundled into any offering, either paid or for free. The invention can be used in the sales process by using profiles and interactively to cross sell or up sell customers to any product or offering including generation of ongoing revenues to the assistance or information-providing organization or to the product-providing organization. Information allows harvesting and disseminating key sales-related information and feedback from masses of client users which can be stored in user profiles or records. The invention also provides for market research by prompting users to provide feedback on any issue including evaluations of offerings and suggested improvements.

Management intelligence is also provided by the present invention by prompting staff to provide feedback on any issue including evaluations of change management processes and results in some methods. The present invention can also provide for corporate intelligence functionality by using profiles to measure staff productivity rates, participation rates, and compliance with work flow and/or corporate processes. Productivity consulting can also be provided, by enabling consumers and staff to use the right tools the right ways, faster, better, and cheaper. This can be used in retail, corporate or other activities.

The present invention includes hardware, software, and method solutions to two problem areas. One problem area includes students not bridging the gap between academics and failing in more directed business-like settings, to develop general business skills. Another problem area includes consumers of digital technologies not being able to utilize significant portions of their technologies because they can not obtain timely help and training tailored to their particular needs. The present invention includes methods for instantaneously receiving help requests from end-users, and intelligently routing the help requests through various software components and algorithms which select appropriately skilled and available student helpers. The student helpers are preferably in a supervised classroom setting to receive and satisfy the requests in subject matter areas they are trained or experts in. After being selected to receive the help request, the student helper and the help requester can establish a direct communication link between themselves followed by a one-on-one help or tutoring session using one or more of synchronous voice, synchronous video, application sharing, and screen sharing Internet technologies. Being private, there is no peer pressure which often reduces the effectiveness of training. The invention also selectively and intelligently adds value, which includes cross-selling. The revenue session can be paid for by the end-user, a user organization, or other third party, with the money

being split among the educational institution, the students, the facilitator organization, and/or combinations thereof.

In a chronological description of one example of the invention, the facilitator organization can sign an agreement with a public or private educational institution to provide the facilitator organization with access to the classrooms, curriculum managers, marketing managers, and student body. The facilitator organization can agree to provide the educational institution with trainers (teachers), and an approved class curriculum designed to improve, among other things, the students' communication, technical, and general business skills. The educational institution may agree to offer one or more of the classes developed and taught by the facilitator organization to its students. In particular, the educational institution can also permit students enrolled in those classes to answer requests for help or training from the facilitator organization's client base located remotely to the students. All students are preferably certified by the facilitator organization in order to qualify for servicing the facilitator organization's clients and to receive wages. Students may receive approved academic credits for the training and professional work experiences they receive from the facilitator organization through their class work.

After agreeing to provide such classes, the facilitator organization can provide a communication link to the educational institution, and further provide links to classrooms or other supervised settings within the educational institution for use during the classes. In one example of the invention, the facilitator organization provides the educational institution with all systems required to link the facilitator organization's clients to the educational institution's classrooms and students via a high speed Internet communication link. The systems provided to the educational institution by the facilitator organization include, among other things, high speed Internet connectivity, sophisticated digital device servers, routers, hubs, local area networks, digital devices, for example computers, for all students in such classes and required software ("partnership IT systems"). In some embodiments of the invention, partnership IT systems digital devices may be paid for entirely or in part by the facilitator organization.

Students applying to take the class, or other employment candidates, may also apply for employment with the facilitator organization using its Skills Inventory Systems. All such candidates will preferably meet screening criteria set by the educational institution and/or the facilitator organization. An instructor-supervisor, or separate instructors and supervisors, may

also be provided and may also be paid for entirely or in part by the facilitator organization. The instructor-supervisor may begin the class by teaching business-related skills such as needs assessment, time management, managing expectations, understanding organizational structures, understanding professional roles and responsibilities and how they can benefit from digital technologies, professionalism in the workplace, how to use software provided by the present invention, how to deal with help requesters of different emotions, roles, backgrounds, intelligence, and subject matter mastery levels.

The students may be taught how to manage client calls and conversations, elicit and define the requester's problems, help the requester learn how to resolve the problem independently by offering training solutions to the problem, followed by winding up the help session and then sending follow-up notes from the session. The students may also be trained to identify what professional roles and responsibilities the requester plays within their organization, and based on that, to deduce what other interrelated technologies and technological features are most likely to increase the requesters' productivity. For example, an administrative assistant may call requesting help setting up an automated mailing function within a word processing application. The student helping that requester may be trained to enquire and assess exactly how that requester is populating their mailing database to determine if it is being input manually, or being copied over from another company database and, if so, how. The student may determine if the copying is being done by "cutting and pasting" or by exporting the data from a spreadsheet or from a database. In most cases, the student will be able to train the requester to dramatically reduce the time taken to achieve their objectives.

This type of training results in high value added consulting services which end up saving the requester and his/her organization significant time and capital. After having helped the requester, depending on the situation, the student may also carry out cross-selling of client's products to the requester or focused marketing research on behalf of the client. In a preferred embodiment, the student helpers are only allowed to be selected to receive calls from requesters after they have been certified by the instructor-supervisor as sufficiently proficient to handle the help requests. The level of supervision applied to a student or the level of autonomy a student may have in servicing requesters may depend on the level of certification a student receives from the instructor-supervisor in relation to the level of service sophistication and complexity required by the facilitator organization's clients.

The students can attend regularly scheduled classes in a supervised classroom setting, where the communication between the student helpers and the help requesters can be monitored by the supervising instructor. The student helpers can log into digital device workstations in some embodiments, signifying their availability on-line to handle questions. As part of the facilitator organization's certification process, students will complete skill-testing subject matter questionnaires to define their skill ratings in the subject matters in which they are proficient. This subject matter determination is preferably done prior to accepting the students into the class, and, as much as possible, will preferably be done automatically using the facilitator organization's Skills Inventory Systems. Once certified by the facilitator organization, and after logging into the computer or other digital device workstations, the student helpers are ready to provide assistance to remote help requesters.

A help requester may have a computer or other digital device related question, for example, a question related to how a digital device related task is to be accomplished using a software package. The requester can select on a help object on the requester's display screen, thereby sending a message or establishing a link to the facilitator organization and sending some help request attributes indicating the nature of the help requester, the subject matter in question, and a help request identifier. If the help requester is authorized to receive help, the facilitator organization's HELPTRAIN Systems automatically select a student helper to obtain a good match to, among other things, the requester's subject matter, employer, level of expertise, geographic location, language, time zone, employer-authorized privileges, past service satisfaction levels with the facilitator organization, account balance or other financial information, and combinations thereof. After the appropriate student helper is selected, the requester's request can be sent to the selected student helper. The help desk software or student helper can respond to the requester by sending back a unique identifier or address that allows the student helper to be reached more directly. After receiving the student helper identifier, the requester can use this identifier to establish a more direct communication link to the student helper. In one example, the Internet protocol address of the student helper is sent to the software program running on the requester's digital device, which uses the student helper's Internet protocol address to automatically establish a more direct link over the Internet. In one embodiment, software sends a request for communication automatically by sending back a unique identifier or address that allows the student helper to be reached using real time

communication (audio, video and otherwise). The requester's PC can use this information to automatically establish a more direct communication link to the student helper.

With a help session established, the requester can request help through any suitable media, including text, voice, video, screen and/or application sharing and URL push. In one method, a small "window" bearing a periodically refreshed/updated video image of the student helper appears on the requester's screen, and a synchronous audio transmission of the student helper and requester's voices is transmitted back and forth between their respective digital devices. The student helper can thus have a real-time, audio and visual presence on the screen of the person being helped. In one embodiment, the requester can also allow the remote student helper to view, in real time, the same display screen seen by the requester. In a preferred embodiment, the student helper may request remote control of the keyboard entries, and cursor movements. The help requester can then allow the student helper to remotely control one or more applications currently active within the requester's digital device with the requester at all times able to instantaneously take back control of the system.

Over the course of a help session, the student helper can provide instantaneous and responsive audio, visual, screen sharing, application sharing and data input to the help requester to both solve the immediate problem and provide carefully tailored training to the help requester. At the conclusion of the help session, the student helper can summarize the contents of the help session in a training reference database for later retrieval by the requester from any Internet connection, and then end the help session or retrieval by other third parties for marketing research, new development, cross selling, up selling and other purposes. The help session is preferably monitorable by the supervising instructor in the supervised classroom setting. The help requester can be billed for the amount of help received, with the revenue from the help requester being used to pay the educational institution, the students, and the facilitator organization and/or combinations thereof.

One preferred use of the present invention is to provide rapid response to digital device users requests for digital device-related subject matter problems, questions, or training needs over the Internet. In this preferred use of the invention, a networked digital device user can click on a help icon on their local digital device display screen and receive direct and individually tailored information and solutions to their problems interfacing through their digital device

screen, provided by a student helper located in a supervised classroom setting in an educational institution, where the student helper is also using a digital device linked to the Internet.

5 In a broad use of the present invention, the help requester at the digital device display may be requesting help with a subject matter unrelated to digital devices, where the subject matter may be any subject matter. In another use of the present invention, a requester who is an employee of a user organization, such as an employer, may send the help requests through the user organization's digital systems and networks, where the user organization may be the payor for the help provided. In some situations, the user organization is an ad-hoc user organization such as an electronic retailer or an Internet portal or a Value Added Reseller which may provide
10 and/or resell the service to its end-users and/or clients.

In a still broader use of the present invention, the help requester may be located anywhere, using any communication link, and have a question to be answered, have a training need, or have a problem requiring a solution. This embodiment of the present invention is only limited by the helpers' ability to provide value-added help to the requesters. In a preferred
15 embodiment, the helper is a student helper in the supervised classroom setting in an educational institution, where the educational institution receives at least some of the revenue paid by the help requester or the help requester's organization.

One use of the present invention is to obtain answers to technical set-up, personalization, and usage questions related to digital devices, where students may have recent training and/or be
20 early adopters. The present invention may however be used for many subject matter areas. The present invention may be used to provide students in a wide variety of work of extra mural activities such as auto mechanics, nursing, social work, and law with supervised experience in providing assistance and advice under the supervision of an instructor in a classroom setting. This improved training may serve to bridge the gap between academic classroom exercises and
25 real world problems which the students will ultimately face, and which the methods of the invention will better prepare them for. In addition to being better prepared to make positive contributions to the economy, the students and/or educational institution can receive payment for the training and work experiences.

Exemplary Advantages of Some Embodiments of the Invention

30 The present invention provides methods for receiving requests for information, help, or training, and for supplying the requested information by employing students in a supervised

setting from within the classrooms of educational institutions. The students can receive academic credit for the training they receive in preparation for servicing requests for information. The present invention methods include receiving help requests from consumers digital hardware, software, services and/or web sites, collectively referred to as “digital technologies”, over the Internet, then instantly and “intelligently” routing the requests to selected, pre-screened, qualified students currently on-line, in a supervised setting within the classrooms of educational institutions. The present invention methods include providing among other features information to consumers of technologies using, synchronous video, synchronous voice, screen sharing and application sharing Internet technologies.

The present invention provides sub-components that address several problem areas. Firstly, the present invention can include software systems which enables users of digital technologies in need of help, guidance, or support, to “click a button” and be instantly routed via the Internet to an appropriately skilled, available personal tutor who appears live, on the display screen of digital devices anywhere. Secondly, the invention can provide centralized, highly automated digital systems which manage the process and knowledge management related to the resourcing, screening, recruitment, training, development, management and employment of large numbers of facilitator organization employees and/or contractors including secondary and post-secondary students, referred to collectively as “Skills Inventory Systems.”

The present invention includes hardware, software, and business method solutions to various problem areas including:

1. One problem area includes students not bridging the gap between academics and the workforce by failing to understand the general business context and its fundamental requirements and by failing to apply their sought after digital technology skills within business-like settings.

2. A second problem area includes consumers of digital technologies failing to realize adequate returns on their investments in technology because they are unable to utilize significant portions of their technologies and can not obtain timely help and training tailored to their particular needs.

3. A third problem area relates to challenges faced by hiring organizations.

Traditionally the process of resourcing, recruiting, screening, hiring, training, developing and managing employees takes a lot of time and is extremely expensive. This is even more true in

organizations with high employee turnover rates. The Skills Inventory Systems component of the present invention is designed to significantly reduce the time and costs associated with these processes and to increase overall employee retention rates. Among other things, the Skills Inventory Systems prevents employee candidates from submitting resumes which rarely contain the exact information an employer required in making its hiring decisions. Instead, the Skills Inventory Systems require all employee candidates to answer highly specific questions which objectively qualify and quantify the nature of their work and educational experiences. In so doing, the Skills Inventory Systems save the facilitator organization significant time and expenses. By retaining and managing a centralized knowledgebase of all employee performance and employee candidate information, The Skills Inventory Systems significantly speeds the process of resourcing future employees, facilitates employee performance evaluation review, cross-training of employees, termination of employees and many other fundamental human resource management tasks and processes across the entire organization. By centralizing the Skills Inventory Systems knowledge base and making it available on-line, any authorized person in a facilitator organization is able to instantly, and in real time, review, evaluate, and report on a very broad array of characteristics defining the company's human resource inventory.

4. The present invention's Standard Operating Systems also ensure, among other things, that the facilitator organization office can:

- (a) more rapidly set-up and integrate a new operating office with the facilitator organization's corporate/head office systems;
- (b) expect total organizational consistency by ensuring all facilitator organization offices are managed using only the facilitator organization's best business and work flow practices;
- (c) expect total consistency of service quality; and
- (d) expect to provide all clients and end-users with a consistent interface and uniform experience with the facilitator organization.

5. The present invention also provides software system for instantaneously receiving help requests from consumers of digital technologies, and having those help requests automatically and intelligently routed through various software components and algorithms to appropriately skilled and available private tutor who satisfy the requests in subject matter areas the student helpers have been trained in and certified as subject matter experts within. The

tutors use synchronous voice, synchronous video, asynchronous chat, application sharing and screen sharing technologies to interface with and teach the user how to solve their problems independently. The service automatically and intelligently route's a user's requests for help by assessing various user support requirements and correlating those requirements against the facilitator organization's roster of available tutors. Among other things, the list of user criteria the service automatically assesses and processes includes the following:

- (a) A user's skill levels in various applications;
- (b) A user's language and social environment;
- (c) A user's employer, and their roles and responsibilities within their employer's organization;
- (d) A user's time zone and geographic location;
- (e) A user's past service experiences with the facilitator organization and/or specific tutors; and
- (f) A user's current account balance and standing.

6. Because this service, often referred collectively in the patent application as "*HELPTRAIN*[™]" totally automates a user's call processing and services establishment, it only requires users to know how to press on or "click" on a single button in order to fulfill the entire process summarized above. In other words, *HELPTRAIN*[™] does not require users to know which tutor is skilled and available to help, how to locate them or even how to establish any synchronous voice, synchronous video, asynchronous chat, application sharing, screen sharing or other technologies required to interface with a tutor in a learning environment. In order to use the service, end-users only require a digital device with an Internet connection and video-conferencing software. The facilitator organization uses highly sophisticated digital systems which manage the technological processes centrally which are described in detail in the attached diagrams. After being selected to receive the help request, the helper or tutor and the help requester can establish a direct communication link between themselves followed by a help or training session using one or more of synchronous voice, synchronous video, application sharing, screen sharing and/or asynchronous chat Internet technologies. A helper who has been previously listed in a database may be selected based on the helper attributes contained in the database associated with that helper. The help session can be paid for by the end-user, a user organization, or other third parties, with the revenue being split among the educational

institution, the students, the facilitator organization and/or combinations thereof, often referred to collectively “as HELPTRAIN systems” in the present application. Real time service data collected during the *HELPTRAIN*™ session can be shared for free or re-sold to other third parties.

5

Description of the Drawings

Figure 1 is a schematic diagram illustrating one method according to the present invention including retail end users, user organizations, facilitator organizations, educational institutions, classrooms, and student helpers;

Figure 2 is a subset of Figure 1, having only one user and one student helper;

10

Figure 3 is a timeline of information exchanged between a help requester and a student helper;

Figures 4-18 are screen captures taken of an end-user’s screen while using an Internet web browser to interface with the invention as described herein;

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Figures 19-22 are screen captures showing what a student helper in a supervised classroom setting will see while interfacing with one example of the invention;

Figure 23 is a business model diagram of one method according to the present invention;

Figure 24 is a flowchart of a retail user purchase process flow for purchasing help in one method;

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Figure 25 is a flowchart of a corporate user or user organization purchase process flow for purchasing quantities of help in one method;

Figure 26 is an architecture diagram of one system suitable for implementing methods according to the present invention;

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Figure 27 is a front view of a product support kit including a headset microphone, a CD-ROM having a computer program thereon, a network address, and a picture of an assistance provider available through using the CD-ROM;

Figure 28 is a back view of the insert of the product support kit of Figure 27, including instructions for using the product support kit;

30

Figures 29A and 29B are flow charts showing a program that can reside on a computer readable media such as the CD-ROM of Figure 27 to establish a connection from a human user to a human assistance provider over a computer network;

Figure 30 is a high level flow chart of a process used to receive a user ID and interact with the user; and

Figure 31 is a perspective view of a digital camera product that was bundled with a product support kit having the headset microphone of Figure 27, and having the CD-ROM of Figure 27 inserted in the personal computer, which has been executed to establish direct communication to the human assistant, having her real-time image displayed on the computer display.

Detailed Description of the Preferred Embodiments

The following detailed description should be read with reference to the drawings, in which like elements in different drawings are numbered identically. The drawings, which are not necessarily to scale, depict selected embodiments and are not intended to limit the scope of the present invention. Several forms of invention have been shown and described, and other forms will now be apparent to those skilled in art. It will be understood that embodiments shown in drawings and described below are merely for illustrative purposes, and are not intended to limit the scope of the invention as defined in the claims which follow.

Figure 1 illustrates a high level organizational diagram showing the interrelationships between the major entities which can be involved in the present invention. The entities are represented by nodes, and the communication links between the entities are represented by lines connecting the nodes. At the center of the diagram is the organizational entity which may be referred to as the help or information facilitator 40. Help facilitator 40 acts as an intermediary or catalyst to facilitate information exchange between the other entities. Help facilitator 40 can be coupled or linked to educational institutions 42 by communications link 41. Educational institutions 42 are linked to supervised settings which can be classroom settings 44 through communication link 45. Classrooms 44 are illustrated as linked to students 46 through communication link 45.

Classrooms 44 can be linked to educational institution 42 through communication link 43. While students 46 may be viewed as mapped to individual communication nodes such as networked personal computers or personal digital devices in one view of the invention, in a preferred view of the invention, students 46 are aggregated within classrooms 44 and are identified by unique student identifiers not permanently linked to any particular physical communication node. As used herein, the phrase "digital device" refers broadly to any device

which can be used to electronically communicate between two remotely situated people, each person having such a device. Digital devices include, but are not limited to, personal computers, general purpose computers, personal digital assistants, handheld or palm computers, wired or wireless keyboards with displays, set-top boxes, game machines, control systems and cellular or wired telephones. In a broad description of the invention, communication link 41 can be any communication link between help facilitator 40 and educational institution 42. Communication link 41 could thus be a wired or wireless telephone link, a wired or wireless text based communication link, or a wired or wireless digital device network link. In a preferred embodiment of the invention, communications link 41 is a network communications link representing a portion of the Internet. In a most preferred embodiment, communication link 41 is a high speed data communications link, for example, what is currently referred to as a "T1" communication line. In this embodiment, communication link 41 is therefore part of the Internet and is not necessarily a direct, one-to-one link exclusively between help facilitator 40 and educational institution 42.

The classrooms or other supervised settings 44 can be linked to educational institution 42 by communication link 43. In one embodiment of the invention, educational institution 42 has at least one server connected to high speed communication link 41, with classrooms 44 having hubs coupled to the servers through data communications links 43. Within classrooms 44, individual students 46 may be logged into individual communication devices on human interface devices, for example, digital devices which can be linked to a hub in each classroom through communication links 45. As may be seen from inspection of Figure 1, there can be numerous educational institutions 42, each having numerous classrooms or other supervised settings 44, each having numerous students 46 aggregated within.

Help facilitator 40 may be seen linked to an individual user, end user, or help requester 50, as these terms are used in the present application. User or requester 50 is coupled through data communications link 49 to help facilitator 40. Help requester 50 may also be referred to as a direct end user or retail end user as they are coupled directly to help facilitator 40. In one example of the invention, retail end user 50 can have a prepaid, individual account, paid for by a personal credit card or electronic cash equivalent. This prepayment can authorize retail end user 50 to request help directly through help facilitator 40. The help request can then be routed to the appropriate educational institution, classroom, and student, as will be explained below.

Various user organizations 56, 52, 60, and 64 are also illustrated in Figure 1 and will be explained further. The user organizations can act as intermediaries between end users who often are not allowed direct access to help facilitator 40. In some embodiments, user organizations are the organizations which are directly responsible for paying for the help received and may be billed directly for the help received by help facilitator 40. User organizations may also be referred to as user aggregates, as the users may not consider themselves to be a member of any "organization." An Internet portal may be referred to as a user aggregate.

User organization 56 is a information service provider (ISP) which can offer Internet access to its end users 58 through communication links 57. One example of an information service provider could be America Online (AOL) and another example could be ATT Worldnet. In these embodiments, communication links 57 may represent dialup, modem communication links between end users 58 and the user organization or ISP 56. In this embodiment, end users 58 may be requesting help or information with aspects of the ISP itself and/or goods or services featured or advertised on the ISP. Help or information requests received from end users 58 through communications links 57 may be forwarded through communication link 55 between the ISP user organization and the help facilitator 40.

Another example of a user organization may be found in employer organization 52, having employee end users 54 coupled through communication links 53. In this example of a user organization, employee end user 54 may be coupled through any suitable communication link, for example, a corporate LAN to a corporate server, which is coupled through communication link 51 to help facilitator 40. In one example of the invention, communication link 51 can be a high speed connection to the help facilitator through the Internet. In the employer user organization, employees 54 may be requesting help with software products used by the employees, where the employer wishes to have the help or information requests sent outside of the organization. In this example of the invention, the employer organization may be responsible for paying for the information or help provided to employee end users 54.

In yet another example of a user organization, product provider user organization 60 may have customers or potential customers 62 linked through communication link 61. One example of a product provider user organization could be a web site maintained by a motor vehicle company, for example, Ford Motor Company. Customers or potential customers 62 could make inquiries about products such as automobiles they wish to purchase, or have already purchased.

Suitable requests for information could be forwarded from customer end users 62, through communication link 59 to help facilitator 40. In this example of the invention, the product provider, such as Ford, may be responsible for paying for the information provided to customer end users 62.

5 In yet another example of the invention, a user organization may be an ad hoc user organization such as an on-line catalog or electronic retailer 64. On line catalog 64 may have otherwise unrelated items featured, being browsed by potential customers 66 through communication links 65. Inquiries from potential customer 66 may be forwarded through on-line catalog 64 to help facilitator 40. In this example of the invention, catalog 64 may be willing
10 to pay for suitable information provided to potential customers 66 in order to facilitate sales.

Figure 2 illustrates a subset of the diagram of Figure 1, to simplify the explanation of the invention. End user or requester 58 is coupled through a communication line 57 to a user organization or aggregate 56 which in turn is coupled through communication link 55 to help facilitator 40. Help facilitator 40 is coupled through communication link 41 to educational
15 institution 42 which is in turn coupled to classroom 44 through communication link 43. A student 46 is coupled through communication link 45 to classroom 44 through communication link 45. In the embodiment illustrated, student 46 may be understood to have an address or unique identifier which allows accessing student 46 through the communication link. Similarly, in some embodiments of the invention, end user or help requester 58 also has a unique address or
20 identifier which enables communicating with the end user through the communication links. In a high level view of the invention, the addresses or unique identifiers could be any suitable identifier or number, for example a phone number, which allowed a connection between end user 58 and student 46. In a preferred embodiment of the invention, the addresses or identifiers are digital device network addresses or identifiers. In a most preferred embodiment of the invention,
25 the addresses are Internet protocol (IP) addresses.

Beginning with end user 58, a help request may be generated, for example, from a digital device display help object on digital device displayed help facilitator link object. In one example of the invention, end user 58 manipulates an object to indicate that help is requested for a common software program. The help request is sent through communication link 57 to user
30 organization 56. User organization 56 may filter or further process the help request. Payment or prepayment may be checked for in the case of an ISP user organization. In the case of an

employer organization, other criteria may be used. The help or information request 55 may then be passed on through communication link 55 to help facilitator 40.

The help or information request can have different attributes in different embodiments of the invention. In one embodiment of the invention, an end user identifier, and the subject matter of the request are included as attributes of the help request and are sent to help facilitator 40. An example of an end user identifier may be a formal or informal name. One example of a subject matter is Microsoft Word. Other embodiments of the invention may also include the user's geographical location, time zone, language, previous help history, and explicitly offered or inferred level of subject matter mastery.

As will be discussed in more detail below, the help request is then intelligently routed to the appropriate student in order to obtain the requested help or information. The selection process can include the instantaneous or immediately expected on-line availability of the student, the language of the student, the time zone of the student, the subject matter expertise of the student, and/or the subject matter mastery level of the student. Based on any or all of these criteria, the help request can be sent to an individual student 46 through communication link 41 to educational institution 42, then through communication link 43 to a classroom or supervised setting 44, then to student 46 through communication link 45. As is explained elsewhere, classroom 44 preferably has a supervisor or teacher present who has the ability to monitor the communication between student 46 and end user 58.

Once the help request is received by student 46, a more direct communication link may be established. In the example of a digital device network being used as the communication link, for example, the Internet, a more direct connection between student 46 and end user 58 may be established. In one example of the invention, the IP address of student 46 is sent to end user 58, with an invitation for end user 58 to open the direct communication link. In another example of the invention, end user 58 has implicitly given permission for the direct communication link to be established by requesting the help or information. In this example of the invention, software on the digital device of student 46 may be used to send back the Internet protocol address of student 46 to end user 58, where software operating on a digital device of end user 58 then uses the IP address of student 46 to establish a more direct connection over the Internet. In one embodiment of the invention, when no suitable helper is available, the end user or help requester

may receive notification of this. The user may later receive notification, for example, through e-mail, that a helper is available and be invited to establish a connection.

In one example of this procedure, end user 58 effectively attempts to open a Internet conference or net meeting with student 46. Student 46 then responds to this request by providing the IP address of student 46 to end user 58. When the end user pending Internet meeting or net meeting software receives the IP address of student 46, a more direct connection between end user 58 and student 46 may be established. The more direct connection may in fact be a very indirect connection through the Internet, but which does not necessarily go through help facilitator 40. The more direct connection is illustrated at 47.

Figure 3 illustrates a timeline or communication diagram between a user 100 and a student or helper 102. In this example, the progression of time is indicated from top to bottom. An initial help or information request 104 is sent from end user or requester 100 to the student or helper 102. The help request is represented at 104. In response, student 102 sends IP address 106 to user 100. The end user may then use the received IP address to establish a more direct connection at 108. An initial greeting or salutation 110 may then be sent from student 102 to user 100. This can include any combination of video, audio, and text. A specific request for information may then be sent by the user at 112 to the student. More specific help or training may then be sent back by the student as indicated at 114. The steps 112 and 114 may be repeated several times as help requests and offered help are exchanged. Another help request at 116 is made by the user, but with the student offering at 118 an invitation for the user to share the user's digital device display. In one embodiment, this invitation is an oral invitation by the student suggesting that the user OK screen sharing with the student. This can mean that the student wishes to see the same display that the user is seeing on their local digital device. In this example, the user grants this permission, for example, by manipulating an object on the screen, thereby sending message 120 granting permission for the screen display sharing. In one embodiment, the user clicks on a "Share My Screen" button on the user's screen. This action can initiate the screen sharing with the student. The screen or digital device display image may also be sent as a copy at 120 to the student.

Similarly, at 122, the student has issued an invitation to the user to allow the student to remotely control data entry to the user's local digital device. Specifically, the student may be requesting permission to manipulate the cursor on the user's display and to make keyboard

entries into display fields. Permission may be granted by the user at 124, again by manipulating an object on the screen. At 126, student 102 may move the cursor, click on objects, and enter keyboard keystrokes to fill in data fields from the student's remote location onto the user's digital device display. The above process can continue with help and training being offered in response to help requests made.

Referring again to greetings 110, the greetings, and other communications from student to user, may be made by any combination of suitable video, audio, and/or text communication. In a preferred embodiment of the invention, the student is able to communicate through video, audio, and text to the end user. While the end user may have video and/or audio to respond, in one embodiment of the invention, the user may make help requests through text.

When the end user has been satisfied or otherwise wishes to end the session, this may be indicated by communication 128 in a wind-up session, responded to by the student at 130. In one embodiment, the user can end the remote control at any time simply by pressing a key or cursor button. In some embodiments, the user is orally invited by the student to press a key as part of the wind up session. The communication link established previously may then be terminated. After termination of the session, the student may summarize the session in text, for example, summarizing the information provided, and entering additional billing information if required.

Another aspect of the present invention includes methods for screening or selecting employees generally, which can be useful in selecting students. One part of this aspect has been previously referred to as a "Skills Inventory System." The student helpers discussed with respect to Figure 3 are preferably screened or pre-selected prior to being admitted into the class, and/or screened prior to being trained to provide the information. The present invention includes methods for screening and selecting employees generally, and for selecting employees having communication and/or leadership skills in particular.

In a first step, the potential employees can be asked to answer questions on-line, for example, over the Internet. In some methods, form blanks are to be filled in. In other methods, the potential employee is lead through a series of questions that vary as a function of questions already answered. In one example, the potential employee is asked if they have held a management position, and if so, are asked quantitative questions as to how many employees managed, how many levels of managers existed beneath them, and how large a budget was

managed. The employer can program specific screening questions designed to weed out candidate with a low probability of success. The potential employee is preferably not allowed to submit a resume, but required to answer the questions asked on-line. This both can elicit more quantitative, position specific information, and weed out job seekers mass mailing resumes without genuine interest in the employer. The candidates responses and data offered can be screened by a combination of humans and/or computers to produce a list of candidates proceeding to the next step.

In a second step, those candidates passing the on-line screening can be interviewed over the telephone. The communication skills of the candidates can thus be initially evaluated over the telephone. The telephone interview can be used to both evaluate communication skills and ask further substantive questions. Candidates deemed suitable can proceed to the next step.

In a third step, the candidates can be invited to attend a group interview. In the group interview, a group of at least three, 10 to 20, or even more candidates are asked to each present a short, nominally 5 minute presentation, preferably a training session or lesson on anything. In a preferred method, the topic taught is not related to computers or other digital devices. In one example, the candidates may be offered example topics, such as how to use a pencil or a stapler. An evaluator present can then evaluate the presentation of each candidate. The evaluator can evaluate based on criteria such as whether the candidates' presentations were on topic, on time, and were well structured. In some methods, candidates are eliminated at this point, while in other methods, there is no elimination based on the short training session. The candidates are preferably graded and notes kept on each candidate. The candidates then proceed to the next step.

In the next step, the candidates are broken up into two groups, preferably in separate rooms. Each group is asked to prepare to debate a topic provided by the evaluators. Topics may be intentionally trite to focus on the true objective, the candidates' communication and leadership skills. One such topic may be to resolve whether chocolate is a superior flavor to vanilla. The candidates can be allowed a short time period, for example, 10 minutes, to prepare the team's argument. This preparation period can be observed by evaluators. The handling and resolution of disagreement, the emergence of leaders, the persuasive ability, the team building skills of each candidate, and the communication skills of all can be observed and rated by the evaluator present in each room. In many situations, the candidates are effectively selected at this

point, based in large part on their behavior in the room prior to the actual debate. In one method, the teams can each elect one member to present the team's position. In another method, each team member is allowed to make their own argument, which can be based on the information gleaned from the team meetings.

5 The candidates can be put together for the brief debate, with each team member allowed to present, or each team leader allowed to present, depending on the method used. The quality of each presentation can be judged, including evaluating whether the presentation was on topic, well structured, and on time.

10 In this way, the efficacy of the screening process can be greatly improved relative to present methods. In one example, 1000 candidates may answer the on-line questions, with 100 remaining after selections. Only 20 may survive the cut made by the telephone interview. Of the remaining 20, only 1 may be the winner of the combined brief training session and team preparation for the debate. This 1000 to 1 reduction can be accomplished at much less cost and effort to the employer than current candidate selection methods. The efficient screening process
15 can be used in the present invention to select both trainers/teachers and student helpers.

 Figures 4 through 18 illustrate digital device displays that are illustrative of the type of displays that may be seen by a help requester using one embodiment of the present invention. While some embodiments of the present invention utilize other communication links and other human interface devices, the digital device display aspect of the present invention is a preferred
20 aspect and may be used to illustrate a preferred embodiment of the present invention.

 Figure 4 illustrates a digital device display 200 which, for example, may be displayed with a cathode ray tube or LCD display panel. The display contents 202 illustrate various ways in which help may initially be requested by the help requester or end user. A link or other desktop object 204 may include a link or identifier of a facilitator organization or product, which
25 in the illustrated example, is "HELPTRAIN". As used herein, the phrases "facilitator organization" and "help facilitator organization" may be used interchangeably, with both referring to organizations which facilitate information exchange generally, not limited to facilitating responses to help requests. The facilitator organization may also be reached by typing in a digital device network address, for example, a URL, as shown at
30 www.HELPTRAIN.com at 206. In another embodiment, a generic help object 208 may include a dropdown list which may then include a link or object to enable reaching the help facilitator

organization. The link to the facilitator organization may of course be stored in a favorites list 210 as illustrated in Figure 4. In another example, not requiring separate illustration, a help facilitator indicia, for example, a logo, may accompany software products or even retail products as displayed along side file lists on the digital device display. In this example, the help facilitator 5 may be reached by selecting on the indicia accompanying the product in the list displayed.

In the example of Figure 4, the facilitator organization (here being SOS, featuring the product HELPTRAIN 212) has resulted in a display being provided which invites login by the user. A prompt and entry field 214 requests the user id, while the password prompt and entry field 216 requests the user password. A login object 218 invites submitting the login 10 information. As previously discussed, the user may be either a direct, retail user having payment terms perhaps previously agreed to, or may be a less direct user coming through a user organization or aggregate.

Figure 5 illustrates display 200 bearing another display screen 220 featuring a list of help facilitator features 222 and a list of supported products including a spreadsheet product 224, a 15 presentation product 226, a word processing product 228, and a database product 230. In other embodiments, the products supported may include other subject matter areas, with the software products subject matters being used only for illustration. Other, non-limiting examples of subject matters include new automobile products, health questions, legal questions, automobile repair subject matter areas, and other consumer subject matter areas. Subject matter choice 20 methods may be various including menus.

Figure 6 illustrates another screen 232 resulting from the requester selecting on database subject matter object 230 in Figure 5. The help request may thus be accompanied by attributes such as the subject matter identity as well as the identity and name of the requester. The identity of the requester may be used to group the requester into manageable aggregates, which may be 25 pre-assigned to educational institutions and classrooms in certain time zones which support the user's native language. The attributes accompanying the help request may be used to select a currently available student having the necessary subject matter expertise and language proficiency required to talk to the requester.

After the helper has been selected and linked to, over the communication link, a helper 30 communication object 240 may be displayed on the requester's digital device display. Helper object 240 may include a video object 242 which is updated, and an audio object 250 which

projects the voice of the helper in substantially real time to the requester, for example, over the requester's headphones or speakers. Figure 6 illustrates the audio/voice response of the helper in a box 250 for purposes of illustration. Helper object 240 may also include a screen share object 244 which, when selected, allows the remote helper to view substantially the same screen as the requester. Helper object 240 can also include a refresh button 246 to refresh the session, and a hangup object or connect object 248 to disconnect the session. In addition to the initial greeting or salutation delivered through audio at 250, a text salutation and greeting 234 may also be included, given the helper's name or identifier 236 and also a session identifier or reference number 238.

In one embodiment of the invention, helper object 240 is created by adapting video conferencing or video meeting software. In one illustrative example, the Microsoft Net Meeting software has been adapted to serve as the helper object 240. The video conferencing object may be adapted for appropriate use by disabling or not enabling unneeded features. In particular, white board features and even video transfer from the user to the helper may be disabled in some embodiments.

Figure 7 illustrates another display screen 252 in which the requester makes a specific help request through a voice entry device such as a microphone at 255. The help requester audio input is represented by a box 255 in Fig. 7 for the purposes of illustration. Helper object 240 receives this oral help request over the communication link established and responds orally at 253, with periodically updated video being included at 242 in some embodiments.

Figure 8 illustrates the situation, which can be several question and answer sessions later than Figure 7, where helper object 240 invites the requester to share the requester's screen at 256. The requester orally accepts this invitation at 260 and selects the screen share object at 244 to enable the helper to view substantially the same screen as the requester.

Figure 9 illustrates the digital device display several questions and answers later, including multiple, overlayed offers of help and information from the helper at 266 and multiple responses from the requester at 268. As may be seen from Figure 9, the video component 242 of helper object 240 preferably floats on top of the application being worked on, making the helper object visible and preferably out of the way at all times. In Figure 9, requester has pulled up an email list 264 and has selected a particular email 265. This is visible to the remote helper as the screen share has been enabled.

Figure 10 illustrates a subsequent display where the requester communicates to the helper at 274 and performs a digital device action by dragging an email sender name to a contact list 272 as indicated at 270. Again, this is visible to the remote helper as the screen share option has been enabled. The helper sees this and comments favorably as indicated at 276.

5 In Figure 11, when demonstration becomes relevant in a training session, the remote helper can take the initiative and offer to provide help, information, or other training as indicated at 280. The requester can respond as indicated at 282. In other embodiments of the invention, the ensuing dialogue can be used to direct the requester to appropriate sites, including commercial sites having the possibility of sales resulting from the referral. While this may be
10 inappropriate in some situations, in other situations, for example, browsing car models, this may be the driving force and reason behind the help or information being provided.

Figure 12 illustrates a situation where the remote helper invites the requester to allow the remote helper to operate screen entry remotely. In this example, the remote helper is offering to take control of the requester's keyboard and/or mouse at 283 to demonstrate to the requester how
15 to do something on their own display. The remote helper reminds the requester that the requester may regain control at any time, as indicated in message 284 which overlaid message 283.

In Figure 13, remote control or remote screen entry 286, is shown, having an accept object 287 and a reject object 288. The purpose of the object is explained in text at 290 and includes audio prompting from the helper as indicated at 292. The requester has orally accepted
20 at 291 and has selected the accept object as indicated at 293.

Figure 14 illustrates the remote helper orally communicating with the requester at 300 and manipulating the curser and keyboard as indicated at 302, causing a drop down menu to appear at 304. In this way, the remote helper can actually demonstrate to the requester how to select digital device display objects and enter data at appropriate locations using the keyboard.

25 This help session continues in Figures 15 and 16, with the remote helper selecting a field from the drop down box at 308 and offering to relinquish control at 306. In the wind up phase of the session, the remote helper can prompt the requester to determine if any further help is needed at 320. With the requester satisfied at 322, the remote helper may offer further, related information or current or future use at 323 in Figure 17. With the requester declining at 324, the
30 final portion of a session is indicated in Figure 18 with the remote helper informing the requester that the instructions covered during the session may be found in the requester's training history,

at 325 or be sent to them by email. The requester may orally terminate the session at 326 and disconnect the session by selecting on connect or hang up object 248.

Figures 19 through 22 illustrate one example of how a digital device display available to the remote helper may be seen by the remote helper; for example in a supervised educational institution setting call center software may be adapted for use or used as is for this functionality. Some embodiments of the invention create displays seen by the helper using call center software. One example of suitable call center software is "Incident Monitor", available from Monitor 24/7, Inc. (Toronto Canada). Call center management software is commonly available from multiple vendors. The call center software can be used together with video conferencing software to provide the helper with tools to assist the help requester. One suitable video conferencing package is Net Meeting, available from Microsoft Corporation (Redmond Washington).

In Figure 19, a detail screen 330 is illustrated, having an open date 356, a subject matter category field, 350, a subject matter subcategory field 352, and a free format note entry field 354. Using screen 330, the helper may summarize the contents and result of the help session. The questions and answers covered may be entered in as much detail as appropriate.

Figure 20 illustrates yet another screen 362 which may be used to enter a link in a preexisting knowledge base related to the subject matter and subject matter subcategory covered during the session. In one example, a manual page may be copied or linked to which covers the subject matter of the question. The remote requester may later pull up their record and click on the link or help page provided, in the event they have further problems.

Figure 21 illustrates one example of a database which may track the help sessions as seen by the helper. Help session database screen 370 may be seen to include a service date 372, and request or tracking number 374, a subject matter column 376, a subject matter subcategory 378, and a brief description 379.

Figure 22 illustrates yet another aspect of the present invention. Displays similar to Figure 22 may be available to the remote helpers in some embodiments but not in other embodiments. In particular, data may be mined from the cumulative help sessions provided by the helpers and stored in a database. In the example provided, the relative proportions of questions are displayed by subject matter category in pie chart 382, including the portion spent on word processing questions at 382A, spreadsheet questions at 382B, presentation questions at 382C, and database questions at 382D. The cumulative results may also be displayed in a tabular

format, as indicated in Table 380. The software product example of Figure 22 is used for illustrative purposes only. The results may also be entered into standard report writers such as Crystal Reports. The data mined could be personal health concern subject matters, automotive service question subject matters and subcategories, and any product or service generally.

5 In commercial situations, where the questions are a prelude to purchase, charts such as 382 of Figure 22 may indicate the relative portions and absolute numbers of people browsing or expressing interest in products. In one embodiment of the invention, the data mined from the cumulative help sessions is sold to interested parties in exchange for that information. The parties may have little idea that there is potential commercial interest in a particular product
10 currently resulting in few sales. A party may also have little idea that a very small subcategory of software product is causing an inordinate number of help requests due to the product design and/or the help manual content.

Figure 23 illustrates a business model of the present invention. A help requester or end user 400, student helper 402, a help facilitator business partner 406, and a help facilitator
15 manager or supervisor 404 may be seen to represent the principle roles of people participating in the business model of Figure 23. Help requester 400 may be seen to communicate with the student helper 402 via communications link 414. As previously discussed, communications link 414 may be any combination of video, voice, text, and application sharing and viewing. Help requester 400 may be seen to initiate a help request 410 to the help facilitator web server 412. In
20 some embodiments, the help facilitator web server 412 may initiate a request via communication link 418 to a help facilitator knowledge base 416. Knowledge base 416 may be used to facilitate self-help for help requesters 400. Help facilitator web server 412 may be seen to use a data exchange communication link 422 to exchange data with a help facilitator application and data store node 426.

25 Application and data store node 426 may be used to intelligently route the help request to the proper helper based on the attributes of the help request and the attributes of the currently available helpers in the data store. Application and data store 426 may then intelligently route the help request via communication link 424 to the selected helper 402. As is discussed elsewhere, the selection of the proper helper 402 may be based on the attributes of the helper and
30 on other operating system type selection rules to insure speedy service, load leveling over otherwise equally qualified students, and other considerations discussed elsewhere.

A help facilitator manager or supervisor 404 may be used to monitor quality of service and maintain data through communication link 430 linked to application and data store node 426. Help facilitator manager/supervisor 404 is preferably present in a supervised setting, for example, a classroom in the educational institution. Help facilitator supervisor 404 preferably instructs the helpers 402 for a time period prior to helpers 402 being allowed to be selected to handle help requests from help requesters 400. Help facilitator supervisor 404 preferably has the ability and tools to monitor the communication link 414 in real time between help requester 400 and helper 402.

In some embodiments of the business model, help facilitator business partner 406 is able to access selected quality of service and data management aspects of the data store via communication link 428. Business partner 406 may also be able to use communication link 420 to access reporting tools web server 412. One example of a business partner is a product provider wishing to mine the data available from the help request and training sessions in order to determine help requester areas of greatest concern or confusion. Another example of a business partner is a marketing executive wishing to query web server 412 to determine the product niches of greatest interest by browsing help requesters 400.

Figure 24 is a flow chart showing how a retail user may purchase help according to one aspect of the present invention. In the step 460, the end user begins the purchasing process, proceeding to step 462 where groups of help requests may be packaged for purchase in various quantities and plans. If the purchaser proceeds to step 464, more information may be requested via email, web frequently asked questions, or through a help session established through the facilitator organization.

If the purchases proceeds to step 466, the purchaser may select appropriate packages of help or call packs and add this to the shopping basket. Proceeding to step 470, the tentatively purchased call packs may be reviewed. The tentative purchase may be changed at step 472 if desired. Proceeding to check out at step 474, the purchaser or end user can create a new customer record at 476 or change the customer record. In step 478, the end user can provide payment information, for example, credit card information or electronic cash information. Proceeding further, the end user may either cancel the order as step 480 or place the order at 479.

Figure 25 is another flowchart, illustrating one way for a user aggregate or user organization to purchase help through the facilitator organization. Beginning at step 500, a user

organization manager can review the offered call pack options 502, giving pricing plans for various combinations of help provided. Proceeding to step 504, more information may be requested and provided using email, web-based frequently asked questions, or an interactive help session through the facilitator organization at 506. If no more information is requested, the user organization manager may proceed to step 508 and select an appropriate call pack option to purchase the appropriate amount of help at 508. In step 510, the tentative purchases may be reviewed, and changes made at step 512, before proceeding to check out 514.

In step 516, the user organization manager may create a new user organization client record. This client record may set limits on the amount of purchases possible for the organization as a whole. One example of such a client record could be a purchase agreement for a corporation for the employees of the corporation to purchase help through the facilitator organization. Proceeding to step 518, the user organization manager can create individual records for each end user allowed to purchase help through the user organization. As previously discussed, one example of this would be a user record established for each employee, limited and authorizing possible amounts of purchase and areas of suitable help which would be provided to that employee.

In step 520, billing information may be provided prior to either canceling the order at 522 or placing the order at 524. Where the user organization is more ad hoc than a corporation and its employees, the user organization manager may be guaranteeing to pay for limited help sessions for certain classes of help requesters and/or help subject matters, with the actual requesters being as yet unknown. The user organization manager may be either agreeing to pay for the help purchased, or agree to be a guarantor of that help purchased in the event the end user does not pay for the help purchased. The user organization is typically the entity to which the bill is sent by the facilitator organization and may often be the payor of monies to the facilitator organization.

Figure 26 illustrates a high level architecture diagram of one embodiment of the present invention. Clients in the architecture diagram can be represented by thin clients 702, for example, web browsers connected via HTML or DHTML links 706 or personal digital assistants (PDAs) 704 connected via any suitable communication link, for example, HTML link 708. A presentation layer or front end layer 710 may be seen to be coupled through communication link

744 to a middleware or transaction layer 712 which is in turn coupled through communication link 746 to a back end or a data store layer 714.

Presentation layer 710 may be seen to include a plurality of web services nodes or servers 718 which can be load balanced using techniques well known to those skilled in the art.

- 5 Similarly, middleware layer 712 may be seen to have a plurality of transaction processors 720 which may also be load balanced using well known techniques. Data store layer 714 may be seen to have a plurality of data base service nodes 722 which may be clustered using well known techniques.

- 10 A business partner node 716 may be seen to be coupled through data communication line 732 to presentation layer 710. Business partner 716 may be making queries as to the nature and relative amounts of various queries through the reporting function, as previously discussed. Business partner 716 may also be coupled through a link 734 to a service level rule engine node 730. An email processing node 726 may be seen to accept inbound email requests 724, passing those requests through communication link 738 to middleware layer 712. In this way, requests
15 for help via email may be processed in some embodiments of the invention.

- A rich client node 728 may also be coupled through data communication link 739 to middleware layer 712. In one embodiment, rich client 728 is a Visual Basic Application running on a digital device. Rich client 728 may be used to view help requester information, view user organization information, log in students, register IP addresses of students, open help requests,
20 work on the help requests, and close the help requests. Service level rule engine node 730 may send modifications to the service level rules via communication link 740 to middleware layer 712. Service level rule engine node 730 may also be used to monitor the queue loads for quality of service issues and generate reports for managers for the facilitator organization. Service level rule engine 730 may also be used to notify employees of the facilitator organization via
25 communication link 736 which can include messages via cell phones, pagers, blackberry type units, and via the Internet. Such notification is useful for alerting managers of quality of service issues, for example, system nodes being down and/or cues being excessively long.

- Figure 27 illustrates a product support kit 800 that can be provided together with a product (not shown in Figure 27) in a supported product kit. Product support kit 800 shows an
30 insert 802 having a front side 803 having a transparent blister or bubble 804 thereover. Within transparent blister pack 804 is a computer readable media 806, which in the embodiment

illustrated is a CD-ROM. Also within transparent blister pack 804 is a headset microphone 808 having a microphone 810, an earphone 812, and a wrap around band 814 for securing over the user's ear. Product insert 802 also features a representation of the product at 816 which in this case is a digital camera, a representation of a computer 818 in which CD-ROM 806 can be executed, and the network address of the help assistance organization that can be connected to provide assistance with the product at 820. The network address 820 is, in the embodiment illustrated, a URL. An assistance phone number is also provided. Finally, a visual representation of a human assistant 814 is shown, indicating the nature of the live, direct, human face-to-face contact that will be provided by the product when activated.

Figure 28 illustrates package insert 802, having a back side 805. Back side 805 includes a telephone number of the help or assistance providing organization at 832, the general computer requirements to execute the CD-ROM at 834, and the indicia of the product manufacturer or seller at 848. Instructions for plugging the headset into the PC are found at 836, while the instruction to insert the CD-ROM into the computer is found at 838. An invitation to discuss product questions with a human assistant are provided at 840. A visual representation of the computer display to be expected by running the program on the CD-ROM is shown at 842, including a picture 846 being edited using the digital camera editing software. Finally, the real-time, updated, video image of a human assistance provider to be expected is indicated at 844.

Figures 29A and 29B are, respectively, the first and second half of a flow chart illustrating a process or method which can be executed by running the program found on the CD-ROM. In general, a method 860 illustrated by the flow chart shows the interaction from inserting the CD into the computer to interacting with a human information or assistance provider. Method 860 can begin with inserting a CD-ROM or other computer readable media at 862, followed by opening the start window at 864. If the user clicks "about helptrain," the "about helptrain" page can be opened at 872. If the user clicks "helptrain FAQ," then the open FAQ page can be opened at 870. At 866, a check is made as to whether the user ID is in the register already. If the user has already registered, step 868 can be executed to open the help assistance web page and auto log in initiated. If the user has not registered, then step 874 can be executed to show the software license agreement. At 876, the user can accept the license and go to step 878 or refuse the license and go to a termination step 882. At step 878, the OS is checked to

determine whether the user has a sufficiently modern operating system, in this example something greater than Windows 95. If the user has an antiquated operating system, termination step 884 is executed. If the operating system is sufficiently modern, step 880 can be executed to determine if the browser version is sufficiently new, in this case, if the Internet Explorer version is greater than 5. If the browser version is too old, then step 884 can be executed to install a more modern copy of the browser, which can be obtained from either the CD-ROM, other computer readable media, or over the internet, depending on the embodiment.

Once a sufficiently modern browser has been loaded, step 888 can be executed to check for a sufficiently modern version of audio or audio visual interaction software. In the embodiment illustrated, the version of the Net Meeting software is checked. If the version is too old, step 886 is executed to install a newer version of Net Meeting which can again come from a CD-ROM, computer readable media, or the network, depending on the embodiment. After a sufficiently modern version of Net Meeting or other such software has been installed or found, step 889 can be entered, to continue to the second half of method 860 found on Figure 29B.

Figure 29B shows step 889, continued from step 889 on Figure 29A. In step 890, ActiveX, can be installed, with failure indicated at 896 if it occurs. Continuing to step 892, the user can select to go back to step 874 in Figure 29A through intermediary step 887 or cancel and go to terminal step 894. If the user elects to continue by clicking next, the user can elect to connect to the assistance provider organization or the assistance provider as indicated at step 902. If the connection fails at 900, it can be attempted again. In step 904, the user can elect to create a shortcut on the user desktop with failure indicated at 906. If successful, step 908 can be executed to insert the user ID into the registry at 908.

The user ID in one embodiment is a random number generated by a computer program that is sent from the user computer to the help assistant's computer, or an alternate embodiments, sent from the assistant's computer to the user computer. In another embodiment, the user ID is generated as a function of software and/or hardware components found in the personal computer. In still other embodiments, the user ID is based at least in part on an Ethernet identification number found in a communication card in the computer. In some embodiments, the user ID is unique to the computer while in other embodiments, the user ID is unique to each individual user of the computer. In some embodiments, the user ID is a serial number or model number of the product or another number provided with the product purchase with the product support kit.

In step 910, the net meeting registry setting is initialized. Proceeding to step 912, the last window is presented with the option to go back to step 892 if desired. Step 914 can then be executed to connect to the help assistance provider, in this case, "helptrain." If the user elects to make this connection, step 916 is executed to connect to helptrain, with the connection process itself finalized at step 918.

A more detailed, textual example of one method that can be used on a CD-ROM to establish an Internet connection to an assistance provider is given below. It is intended to be exemplary, but is not guaranteed to work "as is" on every computer in the world. One skilled in the art may not require it at all, given Figs. 29A and 29B.

1. **Contact PC:** CD Inserted
2. **Contact PC:** Auto start windows
3. **Contact PC:** Check \HKEY_CURRENT_USER\Software\helptrain, if registry key "Log" exists. If exists it indicates the user is already registered with the **helptrain™** service and setup will terminate. The "Log" value is UserID, which will be inserted during the setup to use this UserID for the service login.
4. **Contact PC:** If the registry key "Log" not exists, the setup continues.
5. **Contact PC:** Check the Operating System (OS). If OS is NT4.0 or Win98, check Internet Explorer (IE) version, if not higher than 5.0, start IE 6.0 installation. Check NetMeeting (NM), if version older than 3.01 is found, start NM installation.
6. **Contact PC:** After the installation, check IE, NM again, if installation is not complete, go back to step 5.
7. **Contact PC:** Install ActiveX, if user does not have installation rights, installation will fail, show error message and terminate setup.
8. **Application Server:** Using http protocol open <http://hp.helptrain.com/scripts/register.asp>. The ASP page executes the following scripts:
 - a. Create a new random UserID
 - b. Create profile in **helptrain™** application
 - c. Include join HP project
 - d. Add 30 minutes to call pack.
9. If the ASP page creates the new user account successfully, return UserID to the setup, if not, return "error" box.
10. **Contact PC:** Create shortcut on user desktop, link to http://hp.helptrain.com/scripts/connect.asp?UID=new_userid
11. **Contact PC:** Create a register key, \HKEY_CURRENT_USER\Software\helptrain\Log, value is new_userid.
12. **Contact PC:** Initialize NetMeeting settings as follows (description of settings available):
 - HKEY_CURRENT_USER\Software\Microsoft\Conferencing\Audio Control\Auto Mix
 - HKEY_CURRENT_USER\Software\Microsoft\Conferencing\Audio Control\Direct Sound
 - HKEY_CURRENT_USER\Software\Microsoft\Conferencing\Audio Control\Typical Bandwidth
 - HKEY_CURRENT_USER\Software\Microsoft\Conferencing\DontUseULS

- 5 HKEY_CURRENT_USER\Software\Microsoft\Conferencing\WizardUI
 HKEY_CURRENT_USER\Software\Microsoft\Conferencing\Policies\
 NoDirectoryServices
 HKEY_CURRENT_USER\Software\Microsoft\Conferencing\UI\CallMRU\DefDir
 HKEY_CURRENT_USER\Software\Microsoft\Conferencing\UI\Directory\Count
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\ First
 Name
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\ Last
 Name
 10 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\Email
 Name
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\ User
 Name
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\ Resolve
 15 name
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\ Location
 HKEY_CURRENT_USER\Software\Microsoft\User Location Service\Client\Don't
 Publish
 13. **Contact PC:** Finish the installation, if user checks the "Connect to *helptrain*TM ", open
 20 http://hp.helptrain.com/scripts/connect.asp?UID=new_userid

In order for the process above to work the following back office objects should be available:

- 25 **Resource profile** must be created and activated that includes the following:
- Location – Unique Logical address of the resource such as IP address, telephone number e-mail address or any other uniquely identifiable address.
 - Skills – Set of skills resource will be providing content for
 - Schedule – Timeframe for resource availability
 - 30 • Availability – Readiness of the resource to take a new session (on or off hook).

Contact profile

- Connection method – The connection method resource is using to establish the session with a resource. In this example, the connection method is Internet IP address using VoIP protocol. In other examples the connection method could be any other communication channel including but not limited to PSTN network, VoIP network, TTY, Digital Cable etc.
- 35 • Subscription – Indicates products and services the contact has the *helptrain*TM subscription for. The Subscription may include any one of the following:
 - 40 ○ Subscription unit (# of minutes, # of requests, # of resolutions ...)
 - Subscription length (weekly, monthly, yearly...)
 - Subscription channels (Internet, Phone, Digital TV, PDA ...)
- Subscriber Profile which may include any of the following:
 - 45 ○ Language(s) spoken
 - Contact information
 - Purchase history

- Product registration
- Service usage history
- Customer satisfaction surveys
- Payment method information (credit card, direct debit...)

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Request content in this example is hard coded into the <http://hp.helprain.com/scripts/contactAddVideReguest.asp> connection script. In other examples, the request content could be submitted by the contact using various selection methods such as web forms using drop-down menus, PSTN and VoIP AVR (Automated Voice Recording) systems, digital channel selection or digital voice recognition.

10

Skills based call routing can match every contact request, based on the **Connection Method**, the **subscription** information, **subscriber profile** and **request content** with the best available resource. The interactive session is then established between the contact and the resource using proffered connection method.

15

Figure 30 illustrates a method 950 for connecting to a help assistance organization or an information providing organization. The user ID can be as previously described, for example, being a randomly generated number or any unique identifier provided. At step 954, whether the user ID has previously been received is checked. If the user ID has not previously been received, then step 956 can be executed to create a record or a profile, as the two terms are used interchangeably herein. This user profile or record can be used to create an organic, evolving profile reflecting at least part of the history of the transactions and interactions between the user and the help assistance organization. This can be done through interaction with a human assistant and/or through entering information in screen fields. A preferred embodiment, a human assistant interacts directly with the consumer from the beginning or near the beginning of the process. With the record having been created, user interaction can begin as step 958, between a human assistance provider and the human user. This interaction can take many forms in varying embodiments.

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In some embodiments, the human assistant or information provider can communicate through a real time voice connection, for example, voice over IP, to connect through a network such as the internet between the human assistant and the user. The user can listen to the human assistant's voice through an earphone which can be provided in a product support kit as previously discussed. The interaction can also include a real time, updated, video image of the human assistant displayed on the computer display screen of the human user. In some embodiments, this interaction is accomplished using a one or two way audio or audio-video tool,

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for example, Net Meeting, provided by Microsoft. During this interaction, the user may indicate their geographic location, first name, last name, age, gender, occupation, hobbies, interests, future purchasing decisions, recent purchases, areas of interest, and areas of expertise involving the product or service being supported. As previously discussed, this product can be a digital
5 technology product, a service, or even any simple product or service for which the user requests information.

This interaction can also include screen sharing in which the human user allows the remote human assistant to view essentially the same computer display screen as the human user. The remote assistant can thus view the same screen that the user is viewing. In some
10 embodiments, the interaction includes application sharing, in which the human user grants permission to the remote assistant to allow manipulation of computer devices, for example, cursor movement devices such as mice, and character entry devices such as keyboard keys.

After this session is complete, step 960 can be executed to wrap up the session with the human assistant entering new data into the profile or record for the human user. This data can be
15 used in a subsequent session to provide further assistance to the human user. In some embodiments, the human user is allowed to enter data into a record or database as well, to provide feedback on the product or service, and feedback as to the quality, nature, or suggested future improvement for the assistance providing organization or person. Concerns, questions or areas of confusion about the product itself may be entered here as well. Desired new features for
20 this product can also be entered into a database, either the user profile, more preferably, a separate database. With the profile updated, step 962 can be executed to exit the program in some embodiments.

If the user ID has previously been received, then step 964 can be executed to open the record or profile. Based on information obtained in step 964, the help request can be routed to
25 the best available person at 966. Information used to route the help request to the best available person can include the language of the user, the nationality or location of the user, the product purchased, the level of expertise with the product, the area of interest for the product, or any other data that has been obtained from the human user.

In step 968, after having been routed to the best available person, the user profile can be
30 read by the selected human assistant, to familiarize the assistant with the relevant data, background, and interest of the person to whom they are speaking. In step 970, the human

assistant can mention information from the user profile in order to make the human user feel that they are being directly interacted with and that the person selected is in tune with their needs and interests. In particular, the human assistant can review the previous level of expertise and areas of interest of the human user and mention these in the beginning of the interaction.

5 In one example, the human assistant can call the human user by name or nickname, inquire about their progress in their use of, for example, a digital photography software package, and even mention the nature of the last project that they worked on together. With the human assistant thus forming a tight bond with the user, the interaction can continue at step 958.

10 Method 950 is just one example of one method that can be used with the present invention. Method 950 is by no means limiting. In one example of a variant, after a record is created at 956, step 964 or 966 can be executed to route the help request to the best person, followed by reading the profile, followed by discussing the profile data so that the human user does not feel that they have been passed off to someone who needs explaining as to the user's interests all over again.

15 Figure 31 illustrates a product, a digital camera 982 having been removed from packaging 980. Product 982 may have been sold as part of a supported product kit together with product support kit 800 illustrated in Figure 27. CD-ROM 806 from Figure 27 has been coupled to a personal computer 984. Headset microphone 808 from Figure 27 has been coupled to computer 984 and the software on the CD-ROM installed. The installed software has been
20 allowed to automatically execute, and establish a communication link over the internet to the help assistance provider, in this example, Helprain. With the Helprain software executing, the user interface may be seen on display 986, with the updated, real time image of the human assistant visible at 988. The human assistant can be heard through headset microphone 808 and viewed through updated video window 988. As previously discussed, the human assistant 988
25 can enjoy a two way, direct, personal conversation with the human user. The human assistant may also be able to view the screen as the human user attempts to use a software package, and even manipulate devices such as the cursor movement and keyboard entry to assist the user in using a computer software package.

30 The present invention is no way limited to sophisticated digital devices or to software programs. The present invention may be used to support devices and services with no limitation whatsoever. For example, a product support kit as illustrated in Figure 27 can be supplied

together with a radial saw or a router, with the person working at the assistance center providing support, answering questions, and even giving live, personal video demonstrations as to the proper use of that power tool or router.

It will be appreciated by those skilled in the art that while the invention has been described above in connection with particular embodiments and examples, the invention is not necessarily so limited, and that numerous other embodiments, examples, uses, modifications and departures from the embodiments, examples and uses are intended to be encompassed by the claims attached hereto. The entire disclosure of each patent and publication cited herein is incorporated by reference, as if each such patent or publication were individually incorporated by reference herein.

Example of One Way to Create a Help Communication Object for Audio/Voice/Screen Share and Remote Control

Applicants believe that the foregoing document would enable one skilled in the software arts to create digital device objects which could reside on a digital device display, and allow a remote student helper to communicate help and information through audio, video, screen sharing, and remote control of data entry onto the user's digital device display. Preferring to err on the side of too much disclosure, applicants have included text below describing how to create such an object by modifying readily available off the shelf software components, which, in this example, is NetMeeting, available from Microsoft Corporation (Redmond Washington).

This text describes the Net Meeting Integration interface to manipulate Net Meeting within any environment that supports COM controls (including VB, VC++, VJ, VBScript, JavaScript). This component extends the current supported functionality supplied by Net Meeting to provide a collection of shared applications and a single click approach to application sharing. Several C++ classes COM objects have been created to add this functionality to Net Meeting.

OVERVIEW

A Net Meeting installation provides a stock COM control which provides basic functionality for embedding into web pages and other COM control containers. This shipping component provides the ability to start and stop a conference and determine whether or not Net Meeting is in a conference. One way to extend this functionality is to develop a custom COM control within the C++ environment that has access to the Interface Definition Language (IDL)

file that ships with Net Meeting. This allows the developer to “hook” onto any Net Meeting channel and gain control over the channel. Net Meeting channels are as follows:

- Net Meeting Manager
()

- Conference Manager
- Video
- Audio
- Application Sharing
- Data
- Chat
- White Board.

The remainder of this document will describe the C++ object and the COM component model supplemented with code examples. The Application Sharing channel is currently supported. The framework is in place to allow the developer to easily extend this component model to support other channels.

Component Assembly

In order to provide access to Net Meeting channels that are not exposed through the base product, several C++ classes have been created which in turn are assembled to develop a component model that can be used in any language that supports COM. The Object Model detailed below is the C++ class object model which when assembled completes the Component Model which is accessible through any COM supported development language (i.e. allowing you to leverage all major development and scripting environments).

OVERVIEW

Net Meeting uses, extensively, COM connection points to provide a call back mechanism for channel notifications to applications that have “subscribed” to one or more of the Net Meeting channels. The C++ object model provides the framework to easily develop and extend the supported channels for these connection point notifications. The objects were created manually (as opposed to ATL generated) as the ATL environment does not support the implementation of connection points unless a type library exists. Therefore, it was more expeditious to develop a simple C++ object model to support this (as derived from the nmshare sample provided in the Net Meeting Resource Kit).

C++ OBJECT MODEL

The text below describes the object model to derive ANY channel specific sink. The object hierarchy above shows that a channel notification object is derived by inheriting from the three abstract base classes of:

- 5 **RefCount.** This provides the standard COM AddRef, Release, and QueryInterface methods that are required for a Component to be COM compliant.

CNotify. This provides the abstract base class to connect and disconnect from a connection point (i.e. Net Meeting connection point).

- 10 **Channel Specific Interface.** This provides the Net Meeting Channel Specific Interface that Net Meeting will use to call back the component on (i.e. this is the subscriber interface for the Net Meeting specific channel). The following channels have been implemented:

- *Net Meeting Manager* - provides the call back to be notified when the conference is started.

This is used to obtain a reference to the Net Meeting to the Net Meeting conference object that is passed in.

- 15 • *Net Meeting Conference Manager* - provides the call back interface to receive notifications on the state of the conference and its associated channels. This presently supports the Application Sharing channel.

RefCount CNotify Channel Specific
Interface

- 20 Channel Notifier

- *Application Sharing Channel* - provides the call back interface to receive notifications on the change of state of a the application sharing state within the conference.

- 25 Any new channels need only to follow the Application Sharing Channel as an example as the Net Meeting Manager and Net Meeting Conference Manager are Net Meeting framework channels that hook the conference and the conference channels and only one instance of each is required in this specific implementation.

COMPONENT MODEL

- 30 The component model assembles the C++ classes together to derive a scriptable component based interface to the Net Meeting channel outline above. This facilitates the embedding of the components into a web page and providing access to Net Meeting resources that would otherwise be unavailable in scripting environments. The component model is

displayed below. It consists of four main components (all other components are support components not exposed externally):

1. ConferenceManager
2. AppSharing
- 5 3. SharableApplications
4. SharableApplication

The ConferenceManager provides the main interface to connect and establish “hooks” to the supported channels. The AppSharing object exposes all of the functionality required to manage the Application Sharing channel. The SharableApplications object exposes a collection of SharableApplications on the machine and the SharableApplication contains the specifics of an individual SharableApplication and enumerated by the Net Meeting environment.

1. Details on methods and properties of these components can be viewed through the object browser of any development environment - these items are fully documented in freely available books.

15 IUnknown

ConferenceManager IUnknown

App Sharing Notify

IUnknown

20 Conference Notify

IUnknown

Manager Notify

IUnknown

Nm Manager

25 IUnknown

AppSharing

INmManagerNotify

INmConferenceNotify

INmChannelAppShareNotify

30 areNotify

INmManager

IUnknown

AppSharing

IUnknown

Channel App Sharing

5 IUnknown

Sharable Applications (collection of SharableApplication objects)

INmChannelAppShare

ConferenceManager

10 When a ConferenceManager component is instantiated it initializes itself. It is not until the Initialize method is called that it attempts to connect to a Net Meeting conference. If this is successful an instance of the every component shown in the diagram below will exist.

Manager Notify. Provides the call notification object to hook to the Net Meeting manager.

15 **Conference Notify.** Provides the call notification object to hook to the Net Meeting Conference manager.

App Sharing Notify. Provides the call notification object to hook to the Net Meeting Application Sharing channel.

20 As you can deduce the ConferenceManager uses COM containment to encapsulate this functionality into a single, easy-to-use COM component. New channels added would follow this same containment model using the AppSharing object as a template.

Nm Manager. This contains a reference to the Net Meeting Manager. This differs from the notification object as the notification object is used for call backs issued to the ConferenceManager from the Net Meeting environment. This reference provides access to the base Net Meeting manager as created by this Initialize method.

25 **AppSharing.** This object is exposed as a property on the ConferenceManager object. This object contains all knowledge of the Application Sharing channel and exposes a collection of SharableApplications.

AppSharing

30 This component manages the specifics of the Application Sharing channel within the Net Meeting environment. It exposes a Collaborate and StopCollaborating for control over the

channel coupled with a collection of SharableApplications to offer full control of Application sharing within the Net Meeting environment through a scriptable interface.

SharableApplications

5 This object provides standard collection semantics to allow any scripting environment or language access to the collection of sharable applications on the machine. This collection is Read-Only and must be refreshed by calling the RefreshSharableApplicationCollection on the AppSharing component.

SharableApplication

10 This component encapsulates all the properties required to properly manage a Net Meeting sharable application. The ShareMe method will initiate sharing of the application and bring the application to the forefront for a single user click experience for application sharing (this compares to the 3 or 4 that a user would have to do coupled with moving the application to the foreground).

Code Samples

15 The following is a code sample provided in VBScript to demonstrate the capabilities of this component model.

Chapter 2: Component Assembly

20 Sample Code

```

<script LANGUAGE="VBScript">
dim oNMConf 'reference to ConferenceManager
dim oApps 'reference to SharableApplications collection
dim oAppShare 'reference to AppShare component
25 dim lTimerId
    ' create an instance to make maintenance and is nothing checks easier.
set oNMConf = CreateObject("Monitor247NM.ConferenceManager")
Sub ReLoad
    ' check to see if a conference has been started
30 if NetMeeting.IsInConference() then
    ' if the conference is started and we are being disconnected and have successfully

```

```

    ' hooked the conference then Unitalize.
    if not oNMConf is nothing then
        oNMConf.UnInitialize
        set oNMConf = nothing
5    end if
    NetMeeting.LeaveConference
    end if
    ' submit the form to reload the page
    frmReLoad.submit
10   end sub
    Sub ShowDetails
        ' check to see if a conference has been started
        if NetMeeting.IsInConference() then
            ' tear down the conference because we are leaving
15         if not oNMConf is nothing then
            oNMConf.UnInitialize
            set oNMConf = nothing
            end if
            NetMeeting.LeaveConference
20         end if
            ' show request details
            frmDetails.submit
            end sub

25   sub CallResource(strLocator, strName)
        ' End any previous calls
        EndCall
        spnConnect.innerHTML="Connecting to " & strName
        ' place the call to specified locator (IP address)
30   PlaceCall strLocator
        end sub

```

```

' Net Meeting events from embedded control
sub NetMeeting_ConferenceStarted()
' set a timer to toggle the SOS LiveHelp display
lTimerId = window.setTimeout("InConference",1000,"VBScript")
5  spnConnect.style.visibility= "hidden"
end sub

sub NetMeeting_ConferenceEnded()
ShowLiveHelp
if not oNMConf is nothing then
10  oNMConf.UnInitialize
set oNMConf = nothing
end if
end sub

sub EndCall
15  ShowliveHelp
if NetMeeting.IsInConference() then
if not oNMConf is nothing and not isempty(oNMConf) then
oNMConf.UnInitialize
set oNMConf = nothing
20  end if
NetMeeting.LeaveConference
end if
end sub

.....

25  Sample Code
sub InConference
window.clearTimeout lTimerId
ShowNetMeeting
set oNMConf = CreateObject("Monitor247NM.ConferenceManager")
30  oNMConf.Initialize
DisplayApplications

```

end sub

' enumerates the applications and prepares them for display by initializing the global

' variable oAppShare

sub DisplayApplications

5 *dim oApp*

set oAppShare = oNMConf.ApplicationSharing

if oAppShare is nothing then

*msgbox "The Net Meeting video channel has not been initialized. Please ensure that
you have Net Meeting installed."*

10 *exit sub*

end if

set oApps = oAppShare.SharableApplications

if oApps is nothing then

msgbox "There are no available applications to share. Please execute the

15 *<%=Response.Write(oRequest.mCategory)%> application before continuing."*

exit sub

end if

end sub

.....

20 *Sample Code*

sub ShowMe

if not oAppShare is nothing then

oAppShare.Collaborate

25 *oAppShare.RefreshSharableAppCollection*

oAppShare.StopCollaborating

set oApps = oAppShare.SharableApplications

if not isempty(oApps) then

for each oApp in oApps

30 *if Instr(1,oApp.Name,"<%=oRequest.mCategory%>") > 0 then*

ShowApp oApp

```

exit sub
end if
next
msgbox "You must start the <%=Response.Write(oRequest.mCategory)%> application
5 before proceeding. Start the application and click refresh to continue."
exit sub
end if
end if
msgbox "You must successfully establish a LIVEHELP call before you can be walked
10 through your problem."
end sub
sub ShowApp(oApp)
If oApp.IsShared() Then
oApp.UnShare
15 oAppShare.StopCollaborating
Else
oApp.ShareMe
oAppShare.Collaborate
End If
20 End Sub
.....
Sample Code
sub ShowNetMeeting
LiveHelp.style.visibility= "hidden"
25 NetMeeting.style.visibility = "visible"
end sub
sub ShowLiveHelp
LiveHelp.style.visibility= "visible"
NetMeeting.style.visibility = "hidden"
30 end sub
' window events

```

46087.1.8

```
sub window_onLoad()
```

```
PlaceCall "<%=oAssgnResource.mIPAddress%>"
```

```
end sub
```

```
sub window_onbeforeunload()
```

```
5 if NetMeeting.IsInConference() then
```

```
NetMeeting.style.visibility = "hidden"
```

```
NetMeeting.LeaveConference
```

```
end if
```

```
end sub
```

```
10 </script>
```

Sample Code